

## **PROTECTING SMALL CHILDREN FROM TOXICS IN HOUSE DUST**

**John Roberts, Engineering Plus (9-24-00)**

The health risks from house dust for infants are high and the cost of control is low. Most parents recognize that a clean home is safer and healthier. Unfortunately, the cleaning methods that protect your family from viruses, bacteria, and insects may not protect you from exposure to common toxic substances that most people do not even know are present in their homes. This leaflet is written to inform you of the little-known fact that the carpets and furnishings in most homes harbor levels of toxic-laden dust that are unsafe for young children and to tell you of simple and proven methods to lower the risks from this dust.

Ordinary house dust typically contains pesticides, carcinogens, lead, cadmium, bacteria, mold, dust mites, and animal dander. The connection between these pollutants and some common childhood diseases and injuries such as asthma, allergies, lead poisoning, birth defects, learning disabilities, and even cancer have been well established. Infants ingest an average of one tenth of one gram of dust per day. This dust contains, on average, as much Benzo(a)pyrene (a potent, cancer causing chemical) as three cigarettes.

The U.S. EPA has concluded that most of our exposure to toxic chemicals and allergen occurs not in the outdoor environment, as we might assume, but in the indoor environment, where we spend over 90% of our time. In a way, this is good news. We have more power over the environment in our homes than we do on the outdoor environment. If you are worried about the effect of the environment on your children, a good first practical action is to protect them in the home. Here are some ways.

### **CLEANING METHODS**

**Effective vacuuming of carpets** The carpet is usually the largest dust reservoir in the house. Normal vacuuming of a carpet does not remove all the deep dust. Five to 25 times as much deep dust may remain in older carpets as are removed by regular vacuuming. Nearly all old carpets have an accumulation of deep dust that increases the amount of dust, lead, pesticides, dust mites, and mold on the surface of the carpet and in the air. If you have carpets in your home, you need to keep them clean with an effective vacuum with a power head. These vacuums are three to six times as effective as vacuums without power brushes. The bag, belt, and brush need to be checked and replaced regularly. Taking your vacuum to a repairman for a tune up every two years may be very cost-effective. New vacuums can be purchased for as little as \$70.

An initial thorough vacuuming can remove the majority of the deep dust from a carpet. To remove the deep dust, each week make 25 passes over the door mat and the area of the rug within four feet the main entrance doors, 16 passes over areas that receive a lot of foot traffic, and eight passes over the rest of the carpet. After you have vacuumed in this careful (and time-consuming!) way for a few weeks, you will have removed a good portion of the deep dust in your carpets. From that time, careful weekly vacuuming using one half the passes mentioned above in combination with the other methods listed below should keep carpet dust levels low.

#### **Dirt finder vacuums**

You can speed up the initial removal of deep dust with a dirt finder vacuum. You can get nearly all the deep dust out within ONE WEEK. A vacuum with a dirt finder has a red light that tells

you where the dirt is. When the carpet is clean, the light turns green. It tells you when you need to do more vacuuming and when to stop. It can save you time. It is the best practical insurance available to a parent that an older carpet is safe for a baby to crawl on. They cost \$150 to \$330. Manufacturers include Hoover, Sears, and Panasonic. Check Consumer Reports to find the best buy. If a dirt finder vacuum is not in your budget, you may know someone who owns one. A borrowed vacuum could be used to monitor once every six months to verify the effectiveness of cleaning with the present home vacuum. We suggest you clean a small area completely before moving on. The first cleaning may take several hours but you do not need to do it all in one day. The green light will come on quickly after all the deep dust is out.

### **Door Mats and Shoe Removal**

Put a high quality door mat at each of the entrances to your home and wipe your feet twice before entering. Most door mats sold in retail stores are not very effective at stopping track-in. However, good mats which are deeper, hold more dirt, and are found in front of department stores are available. Lowe's Hardware will special order a Twister 2' by 3' mat from Pacific Mats for around \$28 to \$30. Consolidated Plastics will send a catalog on commercial matting if you call them at 1-800-362-1000. The best 2 ft by 3 ft Lobby Scrape and Dry Mat sells for \$34.50 as of June 2000. Effective vacuuming and use of door mats can bring up to 99% reduction in the pollutants on the surface of the carpet in one month. Removal of shoes before entering your home is also an effective way to stop track-in

### **Dusting and Carpet Removal**

Regularly remove the dust from furniture, window sills, and other surfaces in the home. Use a clean lint-free rag and keep changing it as it gets dirty. Pay special attention to surfaces at your children's level. Bare floors and flat carpets are easier to clean than high-pile rugs. Bare floors are healthier for children with asthma and other respiratory distress. If you remove your carpet yourself, you will want to keep children out of the area and protect yourself by wearing a two-strap dust mask. If you replace your old carpet with a new one, you may want to look into purchasing a carpet that has a green label and is designed to emit less harmful gasses into your home.

### **Dealing with mold**

A carpet laid on concrete that touches the earth, or that has been soaked by spills, floods, or plumbing leaks poses a high risk for developing mold and an excess of dust mites and bacteria. These conditions can trigger allergies, asthma, and other diseases. Dry wet carpets and pad underneath with a fan and/or heater within 24 hours to reduce this risk. If mold has started in a carpet, it is advisable to remove it, as it is extremely difficult to eliminate mold from a carpet. Apartment dwellers often do not have the option of removing a moldy carpet. If you cannot remove the carpet or move to a different apartment, keep your carpet clean and home well-ventilated by running the bathroom fan continuously and opening windows one eighth inch or as wide as you can during the warmer weather. Try to have children sleep in areas that are not moldy.

Removal of deep dust has many advantages. There may be a large improvement in indoor air quality when dust is removed from carpets and furniture. Lower levels of particles, cat and dust mite allergen, mold, and bacteria are stirred up by activity in the room. There is less risk of the occupants developing sick building symptoms such as fatigue, watery eyes and nose, coughing, sneezing, rashes, irritability, and headaches. The carpet will last longer, look better, and is often softer to walk on. Last but not least there is an important reduction in exposure to lead in houses built before 1960. Old houses with remodeling, paint removal, and peeling paint

can have 10,000 parts per million of lead in house dust and present a high lead risk to a young child. Even small amounts of lead can reduce the intelligence of a child.

We encourage everyone with a small child, allergies, asthma, immune deficiencies, or who wants a healthier home to ask for a free home environmental assessment by a Master Home Environmentalist (MHE) by calling the American Lung Association of Washington at 206-441-5100 ([www.alaw.org](http://www.alaw.org)) in Seattle, Clean air for kids in Tacoma at 253-798-2954, and 509-248-4384 in Yakima, WA. They can survey risks from moisture, mold, indoor air, lack of ventilation, and biological pollutants as well as lead and dust. Increasing the amount of fresh air coming into a home may increase your energy level. The MHE can help you reduce the your total exposure to all pollutants in the home. They can also point you toward a professional resource if they find high risks or remedies that may have higher costs. If you have a serious environmental health problem such as severe health complaints, more than one square foot of mold, or sewage back up call your doctor or the King County Hazard Line at 206-296-4692 or 1-800-633-7585.

For more information on lead control in old homes see [www.watoxics.org/thbl.htm](http://www.watoxics.org/thbl.htm) and protecting infants from other home toxins see [www.lwwa.org/advocacy/home-environment](http://www.lwwa.org/advocacy/home-environment). References are found in the dust chapter of 1999 Master Home Environmentalist Training Manual.